AMENDMENTS TO THE CLAIMS

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (Previously Presented) A method for preparing modified microcrystalline chitosan, comprising the steps of:

degrading chitosan in an aqueous acidic solution under conditions to achieve a desired molecular weight range and polydispersity, said solution having a concentration of at least about 0.001 wt% of chitosan;

alkalizing at vigorous agitation said acidic aqueous solution of chitosan with an aqueous base to form a second solution having chitosan concentration of about 0.01-20 wt%, said second solution having a pH of at least about 7.0; and

precipitating said microcrystalline chitosan from said solution.

2. (Original) A method according to claim 1, wherein said degrading step uses an enzyme to degrade said chitosan.

3. (Original) A method according to claim 2, wherein said enzyme is selected from the group consisting of cellulases, chitanases and xylanases.

4. (Original) A method according to claim 1, wherein said degrading step uses an oxidative agent to degrade said chitosan.

5. (Original) A method according to claim 4, wherein said oxidative agent is hydrogen peroxide or sodium perborate.

6. (Original) A method according to claim 1, wherein said degrading step uses a hydrolytic agent to degrade said chitosan.

7. (Original) A method according to claim 6, wherein said hydrolytic agent is hydrochloric acid or chloroacetic acid.

8. (Original) A method according to claim 1, wherein said chitosan has a concentration in said aqueous acidic solution is between 0.1 to 2 wt%.

9. (Previously Presented) A method according to claim 1, wherein said aqueous acidic solution of chitosan comprises an acid selected from the group consisting of acetic acid, lactic acid, citric acid and hydrochloric acid, said acidic solution having a pH of $\leq$ 6.9.

10. (Original) A method according to claim 1, wherein said alkalizing step uses a base selected from the group consisting of sodium hydroxide, potassium hydroxide and ammonium hydroxide.

11. (Original) A method according to claim 1, wherein said alkalizing step uses a base selected from the group consisting of sodium carbonate, potassium carbonate and ammonium carbonate.

12. (Previously Presented) A method according to claim 3, wherein said degrading step is carried out at a temperature $\geq$ 20 degrees C.

13. (Original) A method according to claim 12, wherein said degrading step is carried out at a temperature of between about 30 degrees C and 60 degrees C.

14. (Original) A method according to claim 6, wherein said degrading step is carried out at a temperature $\geq$ 20 degrees C.

15. (Original) A method according to claim 14, wherein said degrading step is carried out at a temperature between about 40 degrees C and 80 degrees C.

16. – 39. (Cancelled)

40. (New) A method for preparing modified microcrystalline chitosan, comprising the steps of:

firstly, dissolving chitosan into an aqueous acidic solution;

second, degrading chitosan in an aqueous acidic solution under conditions to achieve a desired molecular weight range and polydispersity, said solution having a concentration of at least about 0.001 wt% of chitosan, wherein the degrading is enzymatic, hydrolytic, or oxidative, said degrading comprising at least one of the following:

introducing at least one of cellulases, chitanases, or xylanases with an enzymatic activity greater than 0.01 units/cm^3 into the aqueous acidic solution at a temperature between 30 degrees C and 60 degrees C for up to 100 hours, and then increasing the temperature to above 70 degrees C to deactivate the enzyme;

incubating the chitosan in the acidic solution having chydrochloric acid or chloroacetic acid at an amount greater than 0.001 wt% of the chitosan at a temperature between 40 degrees C and 80 degrees C for up to 100 hours; or

introducing an oxidative agent into the acidic solution at a temperature greater than 30 degrees C to 60 degrees C, wherein the oxidative agent is10% hydrogen peroxide or sodium perborate in an amount between 0.01 wt% to 0.5 wt% of the chitosan;

thirdly, alkalizing at vigorous agitation said acidic aqueous solution of chitosan with an aqueous base to form an alkaline solution having chitosan concentration of about 0.01-20 wt%, said alkaline solution having a pH greater than 7.0, wherein the base is a hydroxide or ammonia; and

fourthly, precipitating said microcrystalline chitosan from said alkaline solution.

41. (New) A method according to claim 40, wherein the degrading is enzymatic.

42. (New) A method according to claim 40, wherein the degrading is hydrolytic.

43. (New) A method according to claim 40, wherein the degrading is oxidative.